6.0 AIRPORT PLANS

This Chapter provides a detailed description of the proposed Lunken Airport airfield renovation and tenant lease area expansion options that are included in the Master Plan's Airport Layout Plan (ALP) package.

The ALP shows a conceptual layout of the airfield, landside, and ground access areas necessary to support the design year 2022 aviation activity projections. The ALP package includes the following 13 drawings:

- Cover Sheet
- Airport Layout Plan
- Airport Data Summary
- Airspace Plan
- Approach Plans Runway 3R-21L
- Approach Plans Runway 3L-21R
- Approach Plans Runway 7-25
- On-Airport Land Use Plan
- Off-Airport Land Use Plan
- Landscaping Plan
- Roadway Cross-Sections
- Airport Property Ownership Plan
- Airport Photograph

Reduced copies of these 13 drawings are provided at the end of this chapter in exhibit format.

The narrative description of the recommended Airport Program includes 36 proposed Airport projects. The priority and development staging for each project is depicted on the relevant drawings and discussed in the following three sections:

- Airport Layout Plan (drawings 1, 2 and 3)
- Runway Obstruction Plans (drawings 4, 5, 6, and 7)
- Land Use Plans (drawings 8, 9, 10, 11, 12 and 13)

6.1 Airport Layout Plan

The Airport Master Planning process culminates with the FAA's approval of the ALP. For the City of Cincinnati, the ALP serves as a "blueprint" for the future renovation and development of Lunken Airport. The ALP (drawing 2 of 13) depicts the Airport as it exists today and also shows the facilities that are recommended to accommodate aviation demand through the 20-year planning period. The Airport Data Summary (drawing 3 of 13) accompanies the ALP and presents information regarding the Airport's location, existing facilities, future physical enhancements, metrological data, and other general Airport data.

The design year 2022 Airport development program indicated on the ALP is intended to be implemented in three phases, but can be refined to adjust to changing activity, economic, or industry changes. The first two phases, which encompass ten years, are proposed to support projects that have been identified to meet a proven need, or those with a high probability of occurrence. The remaining, long-range aviation development projects (20-year timeframe) depict airfield and landside development projects that are related to projected 20-year aviation activity demands described in Chapter 3.0. Therefore, the three development phases included in the ALP are:

- Phase I 2002-2006
- Phase II 2007-2011
- Phase III 2012-2022

The Lunken Airport Master Plan Study was initiated in 2002 with assumed project implementation dates to follow attainment of activity levels that trigger the need for renovation or development, and to follow various Federal, State and local approval processes. The actual start of the proposed airfield and landside development projects may vary due to the timing of activity levels and the multiple government approvals required for project implementation.

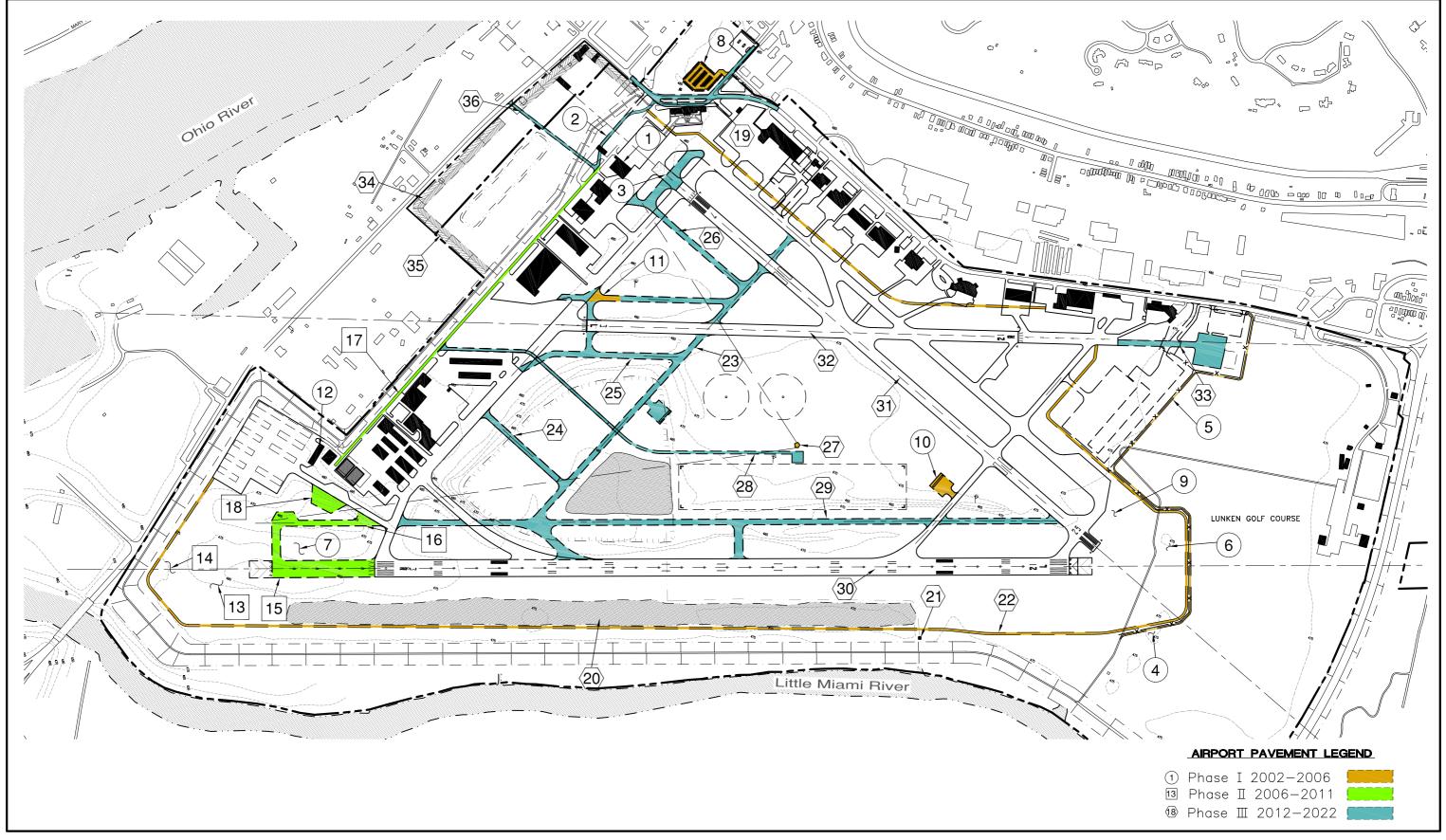
The assignment of projects to each development phase is flexible, as a number of factors influence whether a project will take place at a specific time. For example, some items in Phase I may actually occur in the Phase II timeframe. This could be due to project approval delays, Federal and local funding issues, shifts in market demand, aircraft operational activity levels that differ from forecasts, policy issues, and other operational considerations that are unique to the development of a public airport. The Master Plan process includes an ALP update process to accommodate such shifts, and serves to focus on updating the Airport plans with respect to specific projects, as compared to an Airport-wide update.

The three development phases are carried into and discussed in the financial feasibility plan (Chapter 7.0) following this chapter. This chapter presents a description of the 36 capital improvement projects that are depicted on **Exhibit 6-1.** The estimated construction costs and phasing of each of the projects are shown in **Table 6-1**.

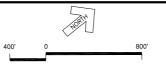
6.1.1 Phase I (2002 - 2006)

The overall scope of the following twelve Phase I Airport projects is intended to enhance the operational safety of the airport and to implement recommended noise mitigation projects derived from the airport's FAR Part 150 Noise Study.

- Runway 7 Obstruction Removal For FAA airspace obstruction compliance purposes, Hangar 3, airport maintenance building 16, a 1,000-foot section of Airport Road, trees, and fencing should be removed from the Runway 7 inner approach areas (Runway Safety Area and Object Free Area).
- 2. Relocate Airport Road A 1,000-foot by 24-foot section of Airport Road is to be relocated adjacent to the existing Airport Road levee. This project would also include the installation of an 8-foot high security fence along both sides of the roadway and the construction of an improved intersection at Wilmer Avenue.







Three - Phase Airfield and Landside Development Plan

EXHIBIT 6-1

				TABLE 6-1				
Cincinnati Municipal Airport-Lunken Field								
CAPITAL IMPROVEMENT PLAN								
NO.	PROJECT DESCRIPTION	TARGET YEAR	UNITS	QUANTITY	UNIT COST	TOTAL COST	REMARKS	
Phase I Development (2002-2006)								
1	Runway 7 Obstruction Removal	2004	LS	1	\$250,000	\$250,000	Trees, Hanger 3, Airport Road	
2	Relocate Airport Road (Interim)	2005	SY	2,200	\$100	\$220,000	Outside OFA	
3	Relocate Runway 7 Threshold by 128 ft.	2005	LS	1	\$100,000	\$100,000	Lighting and Stripping	
4	Relocate Runway 25/21L Bike Trail	2005	LS	1	\$280,000	\$280,000	Outside OFA/North Airfield	
5	Relocate North Field Security Fence	2005	LF	6,000	\$30	\$180,000	Outside OFA/North Airfield	
6	Relocate Runway 25/21L Golf Greens	2005	LS	1	\$150,000	\$150,000	Outside OFA	
7	Runway 3R Environmental/Study	2005	LS	1	\$250,000	\$250,000		
8	Terminal Parking Improvements	2006	Space	150	\$1,200	\$180,000	Paved parking	
9	Noise Mitigation Signage	2006	LS	7	\$3,000	\$21,000	All runway ends	
10	North Engine Maintenance Run-up Area	2006	LS	1	\$370,000		Includes blast fence	
11	South Engine Maintenance Run-up Area	2006	LS	1	\$370,000		Includes blast fence	
12	Airport Maintenance Building	2006	SF	10,000	\$65		Vehicle storage	
	Phase I Subtotal					\$3,021,000		
Phase II Development (2007-2011)								
13	Runway 3R Site Preparation	2007	AC	34	\$10,000	\$340,000	3R RSA and OFA	
	3R Localizer Relocation	2007	LS	1	\$200,000	\$200,000	PAPI, LOC, DME	
15	Runway 3R 899' x 150' Extension	2008	SY	15,000	\$100	\$1,500,000	With blast pad	
16	Runway 3R Taxiway Connector	2008	SY	9,500	\$100	\$950,000	Connect with Taxiway 'C'	
17	Airport Road Improvements	2008	LS	1	\$950,000	\$950,000	Access Road Reconstruct/Rehab	
18	Taxiway "H" Self-Fuel Island	2009	SY	3,300	\$100	\$330,000	Tanks, and pumps by others	
	Phase II Subtotal					\$4,270,000		
Phase III Development (2012-2022)								
19	Terminal Area Access Improvement	2012	SY	9,300	\$80	\$744,000	Wilmer Avenue	
20	Relocate Mid-Field Drainage Area	2013	CY	645,000	\$15	\$9,675,000	40 acres x 10 ft. deep	
	Additional Storm Water Pumps	2013	LS	2	\$400,000		Relocated Drainage Area	
	Airport Perimeter Service Road	2014	SY	23,200	\$20	\$464,000	12 ft. wide outside OFA	
	Relocate Taxiway 'C'	2015	SY	15,400	\$100		1,000 ft. North	
	SASO/FBO Connector Taxiway	2016	SY	5,000	\$100		Tie-in to old 'C'	
	Runway 3L Connecting Taxiways to 'C'	2017	SY	12,700	\$100		Both sides of 3L	
	Runway 7 Connecting Taxiway to 'C'	2017	SY	7,500	\$100		Tie to Taxiway A	
	Relocate ATCT	2018	LS	1	\$1,500,000		Includes utilities to Airport Rd.	
	Mid-Field Service Road	2019	SY	9,300	\$40		Includes access control	
29	Runway 3R-21L Parallel Taxiway	2020	SY	26,900	\$100		Includes connector taxiway	
	Resurface Runway 3R/21L	2021	SY	102,000	\$25		20-year upgrade	
	Resurface Runway 7-25	2021	SY	55,000	\$25	. , ,	20-year upgrade	
	Resurface Runway 3L-21R	2021	SY	42,200	\$25		20-year upgrade	
	Hangar Three Relocation Support	2021	SY	15,000	\$80		Taxiway/Apron	
	Kellogg Avenue Land Acquisition Airport Road levee Relocation	2022	AC	15 315,000	\$100,500		Three commercial parcels	
	Airport Road levee Relocation Airport Road Relocation	2022 2022	CY SY	,	\$25 \$80		Includes flood gate Old Airport Road is Service Rd	
30	Phase III Subtotal	2022	J J I	3,000	φου	\$240,000 \$36,107,500	Old Alliport Road is Service Rd	
Total Capital Project Costs					\$43,398,500			
OTHER COSTS								
	Mobilization 5% \$2,169,900							
	Implementation	10%				\$4,339,900		
	Contingencies	20%				\$8,679,700		
	Total Other Costs \$15,189,500							
	Total Program Costs \$58,588,000							

- 3. Relocate Runway 7 Threshold by 128 feet For Runway Safety Area (RSA) and Runway Obstacle Free Areas (OFA) compliance purposes, this project would include the relocation of threshold lighting, taxiway connector lighting, and runway striping and signing.
- 4. Relocate North Airfield Bike Trail To improve RSA and OFA compliance with the ends of Runway 21L and 7, a 3,400-foot section of the existing bike/walking trail would require relocation. This project also includes the installation of a 10-foot high security fence along airfield side of the relocated bike/walking trail and a golf ball protection fence along selected portions of the bide/walking trail.
- 5. Relocate North Airfield Security Fence As a part of the bike/walking trail relocation project and the proposed construction of a corporate hangar on Lease Area 51, approximately 5,000 feet of 8-foot high airfield security fence would be constructed along the north boundary of the airfield from the east side of Wilmer Avenue to the western edge of the Runway 21L OFA fence line that was included in project No. 4.
- 6. Relocate Golf Course Greens As part of the Runway 25 RSA and OFA compliance project, the adjacent Reeves Golf Course tees and putting greens would require relocation. The integrity of the golf course will be preserved.
- 7. Runway 3R Environmental Study In preparation for the proposed construction of an 899-foot by 150-foot extension of Runway 3R that is required to accommodate the critical design aircraft, this project would pursue the necessary environmental studies and agency approvals that are required to complete this Phase II airport development project.

- 8. Terminal Parking Improvements As part of the on-going terminal area upgrade and roadway access safety program, the existing gravel parking lot is to be replaced by a 150-space asphalt parking lot with access from East Airport Road. This project also includes landscaping, crosswalks for Wilmer Avenue and signage. This project will support the businesses located in the terminal, the charter operations, and the bike/walking trail.
- 9. **Noise Mitigation Signage** Seven illuminated "fly neighborly" pilot information signs would be constructed at the departure thresholds of each runway end.
- **10. North Engine Maintenance Run-Up Area** A concrete aircraft parking pad and a 10-foot high aircraft exhaust and noise deflection barrier would be constructed on the east side of Taxiway 'D'.
- 11. South Engine Maintenance Run-Up Area As part of the Lunken Airport Part 150 noise mitigation program, a concrete aircraft parking pad and a 10-foot high aircraft exhaust and noise deflection barrier would be constructed on the north side of Taxiway 'C'. At such time as Taxiway 'C' is relocated to the north, the engine run-up area would also be relocated.
- 12. Airport Maintenance Building To provide for snow removal equipment storage and other ground maintenance materials storage that would be displaced from the maintenance building relocation project (see Project 1), a new, 10,000-square-foot steel building and equipment storage yard would be constructed adjacent to the existing airport maintenance building located on the east end of Airport Road.

6.1.2 Phase II (2007-2011)

The objective of the following six Phase II Airport projects is to initiate the extension of Runway 3R from a length of 6,101 feet to a length of 7,000 feet.

- **13. Runway 3R Site Preparation** This project includes 34 acres of site clearing, grading, and drainage required to construct the 899-foot runway extension and the parallel taxiway connector to Taxiway 'C'.
- **14.** Runway 21L Localizer Relocation This project would require the relocation of the existing localizer antenna system approximately 1,000 feet to the southeast.
- **15. Runway 3R 899-foot Extension** The 899-foot by 150-foot extension of Runway 3R would include: grading, drainage, paving (asphalt), lighting (HIRL), striping, signage, and a runway end blast pad. This project would be constructed to support 100,000-pound, dual wheel aircraft types.
- 16. Runway 3R Parallel Taxiway Connector This approximately 1,400-foot by 50-foot section of taxiway and aircraft holding apron would connect the new runway end with existing Taxiways 'C' and 'H'. The project includes: grading, drainage, paving (asphalt), lighting (MIRL), striping, and signage. This project will also be constructed to support 100,000-pound, dual wheel aircraft types.
- **17. Airport Road Improvements** This project includes the reconstruction of a 3,400 foot by 24 foot asphalt section of Airport Road. The project will also include drainage, curb, gutters and landscaping.
- 18. Taxiway 'H' Self-Fuel Island In order to decrease the small aircraft ground traffic between the proposed 100-unit T-Hangar development area and the FBO aprons, a self-fueling apron to support four single-engine aircraft is proposed to be constructed on the east side of Taxiway 'H'. The fuel pump island is proposed to be open 24 hours per day, and the subsurface fuel storage tanks and pumps are to be provided by a private operator.

- 6.1.3 Phase III (2012-2022The following eighteen Phase III long-range airfield and landside development projects are intended to address the potential expansion of the south airfield lease areas and the development of a full-length parallel taxiway for Runway 3R-21L.
- 19. Terminal Area Access Improvements This project would include the construction of passenger drop-off and automobile by-pass lanes in front of the terminal. A landscaped median and two crosswalks would be provided for passenger access to the proposed parking lot located east of Wilmer Avenue.
- 20. Relocate Mid-Field Drainage Area This 45-acre stormwater detention project includes the cut and fill of approximately 645,000 cubic yards of earth. Soil from the proposed relocated drainage detention area east of Runway 3R-21L is proposed to be used as fill for the existing mid-field detention area. The project would also include a system of cross-runway drainage pipes and a bird-nesting mitigation project such as the placement of netting over the proposed detention area that would provide sufficient clearance for grass cutting.
- 21. Additional Stormwater Pumps The proposed east airfield stormwater detention area would require two additional, high-volume water pumps and the related Little Miami River levee stormwater management equipment.
- 22. Airport Perimeter Service Road This project includes the construction of approximately four miles of 12-foot wide asphalt service road. The section along the east airfield would support fuel trucks and other service vehicles that require access to the Wilmer Avenue corporate lease areas. These vehicles currently utilize Taxiway 'A'. The north airfield segment and the east airfield segment would support airport security, grounds and NAVAID maintenance equipment. These vehicles currently have to cross

active runways to access certain areas of the airfield. This service road would be designed to support 60,000 pound vehicles.

23. Relocation of Taxiway 'C' – Taxiway 'C' is proposed to be relocated 1,000 feet to the north and parallel to the existing Taxiway 'C'. The new asphalt taxiway would connect Runway 3R-21L on the east airfield with Taxiway 'A' on the west airfield.

This 50-foot-wide Group III taxiway would be constructed to support 100,000-pound, dual-wheel aircraft types. All of the proposed taxiway projects will include grading, drainage, paving, lighting, signage and striping. This project would also include the relocation of the south airfield aircraft engine maintenance run-up pad and blast/noise deflector (see project No. 11).

- **24. SASO/FBO Connector Taxiway** A 900-foot by 50-foot southeast airfield asphalt taxiway would be constructed to connect the proposed relocated Taxiway 'C' with existing Taxiway 'C'. Old Taxiway 'C' would become a part of the future FBO and SASO lease areas.
- **25.** Runway 3L Connecting Taxiways This project includes two 50-footwide asphalt taxiways on each side of Runway 3L, totaling 2,400 feet in length. These taxiway connectors would provide access from Taxiway 'C' to the expanded Airport Road lease areas.
- 26. Runway 7 Connecting Taxiways An 800-foot by 50-foot asphalt taxiway located east of Runway 7 would connect Taxiway 'C' with the relocated threshold of Runway 7. An additional 300-foot section of taxiway would connect Taxiway 'A' with the relocated threshold of Runway 7.

- 27. Relocate ATCT The proposed 60-foot-high air traffic control tower is proposed to be constructed on a site located an equal distance between Runway 3R-21L and Runway 3L-21R. This site provides controller visibility of all runway approach areas, runways, and taxiways. Minor line-of-sight restrictions would be required on some of the proposed Airport Road lease expansion areas. The project will include site preparation, utilities from Airport Road (3,400 linear feet), and parking for 20 employees and visitors.
- **28. Mid-Field Service Road** This project consists of a 3,400-foot by 24-foot asphalt service road that will connect Airport Road with the mid-field ATCT, blimp staging, and banner towing areas. The project would also include a Taxiway 'C' mid-field area access control gate.
- **29. Runway 3R-21L Parallel Taxiway** This proposed 4,500-foot by 50-foot asphalt taxiway would connect the proposed Taxiway 'C' on the south airfield with Taxiway 'A' on the north airfield. This taxiway would also be constructed to support 100,000-pound, dual wheel aircraft types.
- 30. Resurface Runway 3R-21L This long-range project provides for the programmed 20-year cycle for runway rehabilitation. The project would include resurfacing of the 7,000-foot by 150-foot runway, upgrades to the runway drainage system, pavement grooving, new HIRL edge light, new HIRL centerline lights (required for IFR departures), threshold lighting, blast pad paving, striping, and a PAPI system for Runway 21L.
- 31. Resurface Runway 7-25 This project provides for the programmed rehabilitation of the 5,000-foot by 100-foot asphalt Runway 7-25. The project also includes upgrades to the runway drainage system, pavement grooving, new MIRL runway edge lights, threshold lighting, blast pad paving, striping, and REILs and PAPIs on both Runway ends 7 and 25.

- 32. Resurface Runway 3L-21R This project provides for the programmed rehabilitation of the 3,802-foot by 100-foot asphalt Runway 3L-21R. The project also includes upgrades to the runway drainage system, pavement grooving, new LIRL runway edge lights, threshold lighting, striping, and REILs and PAPIs on both Runway ends 3L and 21R.
- 33. Hangar 3 Relocation Support –This project would support the proposed Hangar 3 Museum concept, which includes the relocation of Hangar 3 to a 5-acre site on the golf course adjacent to Wilmer Avenue. The project includes a new 600-foot by 50-foot taxiway connector from Taxiway 'D' and a 400-foot by 400-foot aircraft parking apron. The project also includes two access-controlled taxiway security gates. If the Hangar 3 relocation project is not feasible, the City has the option of considering demolition of the building while meeting State historic preservation requirements
- 34. Kellogg Avenue Land Acquisition This project provides for the long-range relocation of the Airport Road levee outside of the Runway Protection Zone (RPZ) of Runway 7. The project includes the acquisition of approximately 15 acres of commercial property located along Kellogg Avenue. This property includes a 5.5-acre parcel used as an auto salvage yard. Other parcels include a 5.5-acre transportation vehicle staging area, a 2.4-acre convenience store (with auto fueling), and a 1.6-acre site that contains a meeting hall. This land acquisition project, combined with an 18-acre water treatment pond area located on Airport property, would provide the basis for relocating the Airport Road levee and the long-range development of a 20-acre airport office park.
- **35. Airport Road Levee Relocation** This project would include the construction of approximately 3,600 feet of new flood control levee that would parallel the north side of Kellogg Avenue and the east side of

Wilmer Avenue. The proposed levee would be located outside of the Runway 7 RPZ, and the existing Airport Road levee would be removed.

36. East Airport Road Relocation – With the relocation of the Airport Road levee, a new, three-lane (left turn lane) Kellogg Avenue and East Airport Road connector would be constructed. The existing East Airport Road connector with Wilmer Avenue would be closed and utilized as a part of the Airport perimeter service road system. This project would also include a flood control gate with Kellogg Avenue and the new East Airport Road connector.

6.2 Runway Approach Plans

The runway airspace obstruction plans graphically depict physical objects that exist in the navigable airspace surrounding Lunken Airport. The criteria used to define objects that constitute obstructions to the safety of approaching and departing aircraft are contained in Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*. The future guidelines for identifying airspace obstructions are described in detail on the Airspace Plan (drawing 4 of 13) that shows five imaginary obstruction control surfaces as defined by FAR Part 77. Based on the FAA's current Lunken Airport Obstruction Chart (OC-83, August 1993), on-site obstruction photo surveys indicate that no new major airspace obstructions have been identified. The most significant airspace obstructions (which have existing FAA waivers) appear to be the existing hills that surround Lunken Airport on three sides.

If airspace obstructions are found to penetrate any of the five FAR Part 77 Obstruction Control Surfaces, the FAA typically requires that these objects be lighted and marked in accordance with FAA obstruction identification standards.

Related to the FAR Part 77 Airspace Plan are the Runway Approach Plans (drawings 5, 6, and 7 of 13). These three drawings show the plan and profile views of the runway approach zones for the existing and proposed approach surfaces. The information

AIRPORT MASTER PLAN UPDATE (DRAFT)

PB Aviation October 5, 2004

portrayed was developed from the existing FAA Lunken Airport Obstruction Chart, FAA published instrument approach procedures, on-site visual obstruction surveys, navigational charts, USGS topographic maps, City of Cincinnati topographic maps, and 2003 aerial photography.

The FAR Part 77 obstruction control surfaces, the transitional surfaces, and the RPZs should be Obstruction free. Where obstructions such as trees, buildings, or NAVAID structures exist, at least one of the following three actions must be taken:

- The obstruction must be removed.
- A waiver may be granted from the FAA for retention of the obstruction.
- The threshold of the runway may be displaced.

Based on the Lunken Airport obstruction analysis, the primary emphasis on obstruction removal focuses on the obstructions to the approach to Runway 7. Obstructions shown to be removed include Hangar 3, airport maintenance building 16, trees, fencing, and a 1,000-foot section of East Airport Road. For the Airport in total, other minor airspace obstructions include the periodic trimming of trees within the approaches of the other five runway ends. Obstruction removal projects have the highest priority within the project phasing schedule (see Table 6-1), and on-airport obstructions are typically removed as part of the normal FAA annual inspections and the ongoing City of Cincinnati Lunken Airport maintenance program.

6.3 Land Use Plans

This section describes the two sets of land use plans developed as part of the Master Plan Study. The On-Airport Land Use Plan (drawing 8 of 13) and the Landscaping Plan (drawings 9 and 10 of 13) depict development areas within the future Airport property line. The Off-Airport Land Use Plan (drawing 11 of 13), Airport Property Ownership Plan (drawing 12 of 13), and the Airport Photograph (drawing 13 of 13) present guidelines for development of compatible land uses in the vicinity of Lunken Airport. The two land use plans are discussed in the following sections.

6.3.1 On-Airport Land Use Plan

The On-Airport Land Use Plan (drawing 9 of 13) was developed to achieve optimal utilization of land uses within the future Airport boundary. Data presented on this plan are divided into two major elements:

- Capital Project Phasing
- Existing and Proposed Land Lease Areas

Capital Project Phasing – The three-phase program, which includes the 36 projects previously described in Section 6.1 and depicted on Exhibit 6-1, is presented as proposed pavement hatch patterns for the 5-year, 10-year and 20-year planning periods.

Existing and Proposed Land Lease Areas – The 29 existing on-Airport land lease areas and the nine proposed on-Airport land lease areas are depicted on the plan. The descriptions of each existing and proposed land lease area are shown in tables, and each parcel identifier is designated on the individual lease area. The lease areas follow the land use concept of designating the Wilmer Avenue lease areas as Corporate Land use, and the Airport Road Lease areas as FBO and SASO land uses.

Landscape Plan – In support of the On-Airport Land Use Plan, the Landscaping Plan (drawings 10 and 11 of 13) provides preliminary guidelines for both the existing and future lease areas.

6.3.2 Off-Airport Land Use Plan

The Off-Airport Land Use Plan (drawing 10 of 13) provides Airport management with data to assist in maintaining positive control of properties within the 65 DNL noise contour as well as the runway approach safety areas. Areas located adjacent to the Airport that lie within the 65 DNL contour should be considered

for positive control (fee simple or avigation easement), to ensure that these Off-Airport land uses are compatible with projected aircraft operations.

In support of the Off-Airport Land Use plan, two additional drawings are included in the plans package:

Airport Property Ownership Plan – The Airport Property Ownership Plan (drawing 11 of 13) shows the detailed history of FAA financial participation in the individual parcels. This includes fee simple land acquisition as well as avigation easements.

Airport Photograph – The Airport Photograph (drawing 13 of 13) depicts Lunken Airport at the time (April 23, 2003) that the Master Plan was undertaken.